

CLAIMS

1. Device for attachment of a chute (4) onto an exit opening (15) of a hopper (3) conveying powder products into an electrolytic pot, the chute comprising a body (5) and a tube (6), characterized in that the hopper (3) comprises at least one chute attachment element (7) fixed to the hopper, and comprising a bearing area that is substantially horizontal during use, and in that the body (5) of the chute (4) comprises at least one attachment hook (9) articulated about a substantially horizontal axis during use, and designed to engage onto the attachment element of the hopper or one of the attachment elements (7) of the hopper.

2. Device according to claim 1, characterized in that the attachment element or each attachment element (7) of the hopper is located radially at a distance from the exit opening (15) of the hopper, the articulated attachment hook (or each attachment hook) (9) of the chute (4) being orientated outwards and being intended to engage from the inside towards the outside onto the attachment element (7) of the hopper, or one of the attachment elements (7) of the hopper.

3. Device according to either claim 1 or 2, characterized in that the attachment element or each attachment element of the hopper comprises a tab (7) of general vertical orientation during use with an opening (8) forming an open or closed ring for engagement of an attachment hook (9).

4. Device according to either claim 1 or 2, characterized in that the attachment element (7) is a single element and comprises a ring or an annular collar, with its orientation substantially horizontal during use, fixed to the hopper, located at a specific distance from the exit opening (15) of the hopper and comprising a rim facing upwards to attach the attachment hook(s) (9).

5. Device according to any one of claims 1 to 4, characterized in that the attachment hook or each attachment hook of the chute (9) comprises a so-called "upper" part (12) located above the axis of articulation (10) during use forming the hook itself, and a so-called "lower" part (13) located below the axis of articulation during use and comprising a ramp shaped surface (14) which, being on the opposite side to the open side of the hook or each hook (9), will tip the hook (9) towards a detachment position which enables it to be separated from an attachment element (7)

of the hopper.

6. Device according to claim 5, characterized in that the distribution of mass between the upper part (12) and the lower part (13) of the hook (or each hook), is such that it maintains the hook (or each hook) in an attachment position so that it can be fixed onto the hopper.

7. Device according to any one of claims 1 to 6, characterized in that the upper part (12) of the articulated hook (or each articulated hook) (9) is profiled to form a ramp enabling automatic pivoting of the hook(s) as it is (they are) brought upwards into contact with the attachment element(s) (7) of the hopper.

8. Hopper (3) for conveying powder products into an electrolytic pot, onto which a chute (4) is fixed, characterized in that it comprises at least one attachment element (7) fixed to the hopper, and comprising a bearing area that is substantially horizontal during use.

9. Hopper (3) according to claim 8, characterized in that the attachment element (or each attachment element) of the hopper (7) is located radially at a distance from the exit opening (15) of the hopper.

10. Hopper (3) according to either claim 8 or 9, characterized in that the attachment element or each attachment element comprises a tab (7) of general vertical direction during use with an opening (8) forming an open or closed ring for engagement of an attachment hook (9).

11. Hopper (3) according to either claim 8 or 9, characterized in that the attachment element (7) is a single element and comprises a ring or an annular collar, with its orientation substantially horizontal during use, fixed to the hopper, located at a specific distance from the exit opening (15) of the hopper and comprising a rim facing upwards to attach one or more attachment hooks (9).

12. Chute (4) for conveying powder products into an electrolytic pot, to be fitted on a hopper (3) comprising a body (5) and a tube (6), and characterized in that it comprises at least one hook (9) articulated about a substantially horizontal axis of articulation during use, and designed to engage onto one

attachment element (7) of the hopper.

13. Chute (4) according to claim 12, characterized in that the articulated hook or each articulated hook (9) is orientated outwards and will engage from the inside towards the outside onto an attachment element of the hopper (7).

14. Chute (4) according to either claim 12 or 13, characterized in that the hook or each hook (9) comprises a so-called "upper" part (12) located above the axis of articulation (10) during use, forming the hook itself, and a so-called "lower" part (13) located below the axis of articulation during use and comprising a ramp shaped surface (14) which, being on the opposite side to the open side of the hook or each hook (9), will tip the hook (9) towards a position that will enable it to be separated from an attachment element of the hopper (7).

15. Chute (4) according to any one of claims 12 to 14 characterized in that the distribution of mass between the upper part (12) and the lower part (13) of the hook (or each hook) is such that it maintains the hook (or each hook) in an attachment position so that it can be fixed onto a hopper.

16. Chute (4) according to any one of claims 12 to 15, characterized in that the upper part (12) of the articulated hook (or each articulated hook) (9) is profiled to form a ramp (14) enabling automatic pivoting of the hooks as they are brought upwards into contact with one or more attachment elements (7) of the hopper.

17. Accessory for assembly and disassembly of a chute (4) according to any one of claims 12 to 16 onto a hopper (3) according to any one of claims 8 to 11, characterized in that it comprises means to displace the chute (4) vertically and means for actuating the attachment hook (or each attachment hook) (9).

18. Accessory according to claim 17, characterized in that the vertical displacement means comprise an open ring (16) intended to engage around the chute (4) and will apply upward pressure on the body (5) of the chute to be able to lift it, and which is installed at the end of an actuation device such as a rod (17).

19. Accessory according to either claim 17 or 18, characterized in that the means of actuation of the hook or each hook (9) comprise an open ring (20) that is intended to engage around the body (5) of the chute (4) and will lean against a ramp (14) of the hook or each hook (9) to tip it toward a

position that enables it to be separated from the attachment element (7) of the hopper, and which is installed at the end of an actuation device such as a rod (22).

20. Accessory according to any one of claims 17 to 19, characterized in that it comprises a fixed or a removable rack (18) typically arranged on the superstructure (2) of an electrolytic cell, the rack comprises at least one notch (19, 23) intended to form a bearing point for one or for each actuation device (17, 22) of an open ring (16, 20).

21. Method of assembling and disassembling a chute on a hopper for implementation of the device according to any one of claims 1 to 7, characterized in that it includes creating a vertical displacement of the chute (4) with respect to the hopper (3) to bring the attachment hook(s) (9) into a position in which they are above the attachment element(s) (7), followed by actuation of the attachment hook(s) (9) to detach it (them), or actuation of the attachment hook(s) (9) to attach it (them), depending on whether the purpose is to remove or to install the chute.

22. Method according to claim 21, characterized in that it includes use of the accessory according to any one of claims 17 to 20.

23. Electrolytic cell comprising at least one hopper (3) according to any one of claims 8 to 11 and / or at least one chute (4) according to any one of claims 12 to 16, to convey powder products to it.